Notebook, N-04-07-30

This notebook was used by Edison during July and November 1904. It contains notes and drawings regarding storage battery experiments. Included are items relating to the discharge of gas by the cells, the seals on the outer container of each cell, the loading of iron powder in the grid pockets, and the composition of the nickel used in the cells. The pages are unnumbered. Approximately 25 pages have been used.

N-040730
xE-172

N-04-07-30

July 30 1904 -

To test amount of Carbonic acid gas that gets through into KOH

Measure Content in cc

Make 12 + shelf with holders

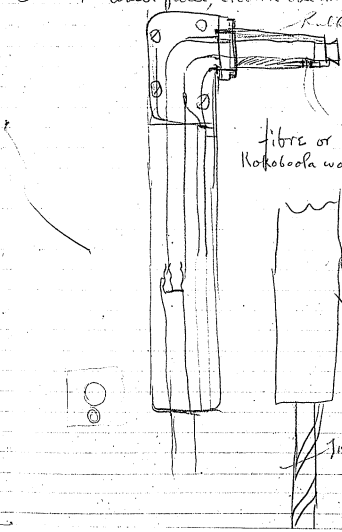
1st Nothing in
2 - Millon's Base 3 grams
3 " " 10 grams
4 BaOH - saturated,
5 Bismuth hydrox
6 Magnesium hydrox
7 HgO -
8 - Ferric hydrox
9 CdOH
10 CeOH,
11 Nothing - to check No 1
12 NiOH
13 Baly saturated 0 of BaOH with Ferric BaOH.

Space to put Reagents

Space to insert

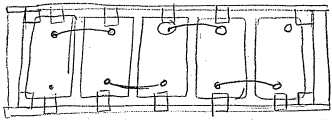
July 30 1904

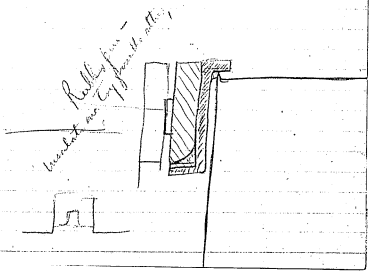
Water filler, Electric bell indicator



July 30 1904

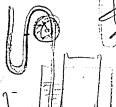
Rearrangement of tray for bottles insulation



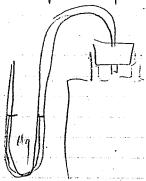


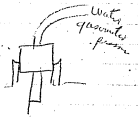
July 30 1904

Welded Cans [illegible] should be immersed in water & tested by air pressure for leak –



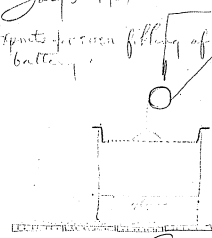
& finished cell-filler sealing also tested for leaky top





July 30 1904

Experiments for screw filling of the pockets in battery.



After assembling ~~[illegible]~~ pass out they have a large pimpleus. This is scraped off into a receptible. There is a false plate ~~[illegible]~~ above the plate holding the pocket which is of brass & Chubb charged in size exactly to suit conditions as to weight of mix - the double plate after removal of surplus stuff - put on hand press & my pressed into lower plate & false plate removed. The very desired cup plate.

July 30 1904

being placed over it & pressed by a brass press to put the 2 pockets together to form the complete pocket.

Try Chromate K on albumen KOH
Exposed to light see if albumen
hardened has anything on KOH,

See if Iodide of Hg changes the
color in KOH

[illegible]

Battery - Nov 26 1904

Group, Cups treated yesterday
Vapor [illegible] of H_2S passed
[illegible] from Sulphide on
[illegible] Soaks [illegible] 33% KOH
25 for 5 cups | 2 weeks

[illegible] treated
[illegible] KOH 48 to 2 weeks
Use CP Solution & metal get no more

Group [illegible]

Group all [illegible] Nickel Cups
not worked.

Group Reg Cups in Stick KOH, 33

Group in Weak CP [illegible] KOH 33

" KOH from Sulfate

Group Madeleine Cups
" Removed by [illegible]

Nov 26 1904

Group Melasses graphite Cosmo

" Regulars in NaOH from metal
33% 21% —

Group [illegible]

" " Regulars

Electrolyze 50 [illegible] water by hydrogen. The Electrolyzer is in solution of KOH until get 1 pt Capacity. This will keep gaskets from breaking or softening — look in gas theory —

Reduce Carbonate by Hydrogen then fill in proper Nat Cal Solu in pipes, [illegible] do it again until all full. gas theory — use low temp to keep from shrinking

Nov 26 1904

Make some Ni by precipitating
Sulphate with pure KHypochlorite,
Boil & [illegible] then Excess KOH to
dissolve excess Carbonate —

Open one of the 120 hour Green Ni
box of sticky - Solid, how far black
See dup 4 to 1

Look some Green in 33, for 6 hours
at 250 Fahr then drain off 33 4
Wash with CP Water, dry & make
Group for Reg run - Group for Reverse
and group for 120 hour soak —
Use CP dech. bumped up -
Notice after drying if black is same —

Group Reg Rhyd 33/. little Mtly in
Solution —

Nov 26 1904

Acceptance of the aluminum bullets
iron or nickel —

Cup Plus.

Molasses. after thoroughly covered
mix with ½ grams Hi Exp. then ship
put in, The Hi Exp. give chance gas
coming out,

For 120 hours soak —
groups 3. grms — 2.8 2.5 2.2
& 2 grms - Reg —

Run Reg group Grms in 21 hour chge first
then 3 3/4 hour chgs on group of 2 2.2
2.5 2.8 & 3.2 Reversed perforation
see if contact per gram cart holes
on thin Cups.

OUS

Nov 26 1907

on charging may be proportional to
mix but at 33/4 think output per gram
will increase as Carbon increases —
possibly - 15% CuO, or 4 grams of graphite & dry
mix duplicate be good

Judging from the runs of green
Ni sanded 33% 24 & 48 hours
+ on 2nd run gave - 285 to V that
10% of graphite will not be absolutely
necessary but probably good enough to do so
will run 20% 7 months 7 & 3 done
no better at present expect
this should be so if gas is the
limiter —

Look at old book where runs were
in 20% & 10% & get % of fall in
Capacity between 2 & 10 at high
& low is at normal, think
fall very little at normal
temperature as I think a slight gain
20 hours cause loss at high rate
knocks gas's strength, whereas at
normal there little gain & slight
drop slightly in favor 20% at normal
& 10 " " 20% at high rate after 29th run
10 " " " — 20 at high rate

Be sure you make the glucose
grind absorbed into Erlenmeyer
the 5% $NaHCO_3$ dry up of and soak
Use here after so varied [illegible]
Hydrolyze [illegible] make [illegible]

Take the bursted 15% soak in
water [illegible] 24 hours, then
dry & compare & test in new
Reserve [illegible] dry & run
[illegible]

Take another 15% dry up
~~[illegible]~~ - Reserve in 21%
150 + Run 1 after that
Soak in water (hot) - then dry
& then put back in 21% & run
if good then come back —

Nov 29 1907

Possibly the passages of flat
swelling by long running and
closing by Winding like alloys
like Aluminum bronze etc
so that not only at these gas
keeping by quenching and aging
is check only at Reversing
Cause High Impurities Cl from the
Chlorine [illegible]

See if [illegible] in group of
Gross 1st soaked 33% [illegible]
24 hours in Clean Charge
33% 150 Fahr. 15 hours 100
then put 24 4 Chg 200 Rack
dis chg 100 —

Reverse the 6 and 6 columns.
No. heat 150 15 hours see if
brings it back — 1st Run it
Reg in new KOH & if it short
Come back in 2 hrs then
Reverse it

Nov 29 1904

When the Madeira grafts were first received there in 24% 100 rills, 125 deg to graft but unknown, the old book showed that with glycerine the received no was dk & unknown 1 g —

11% stand by some green dehydrated to permit where the yellow & tried additional grafts 3.12 smoked 33% 48 hours & also unlikely 50 ok —

Try make a group crimped & corrugated additional putting several by pressure on 1117, think 1/2 tons and 1117 4 bad also corrugating possibly can corrugate Cut first, then full of use special crimp —

Nov 29 1904

2 d 3

Make ~~[illegible]~~

The new curves with pockets proved various pressures — also their pockets — also their pockets grew swelled 33% 48 hours

~~[illegible]~~ put them up with Rubber Top & bottom fastened together

Look at Curves of Green=after Cannot get together out full
Try only discharge to 120 for Colp Co tomorrow — also try discharge Sec wire to get universal Rec

Try Group where grid put in for Iodide in use in Solution NH_4Cl & NH_4 — then in KOH & then Water then dried; then looks swelling together also on green — There may be good deal in this as K_2SO_4 looks lead O_x together in Lead battery. by varying strength look every pocket together instead Bad Contact & breaking apart.

Nov 29 1904

Can try powdered green carbon in little mound see if can be hooked
together with the gas in porous.
Try other NH solution NH4 - something on the
Cathode way by deluding will work +

Take a Rod & dissolve it in small cell
1" apart from 1 hour then 1/2 then 1/4
1/8 1/16 - get Resistance thus along
Can move it when about 1/2 way
along the dissolve & get all the
resistance in 2 minutes, Wonder can
do it,

Aluminum is precip from KOH, by
passing CO_2 thru till KOH is Carbonated
= perhaps CO Carb with quicklime Ca
go way get KOH free of Al -

Thus locking together of the green
particles by a Solvent like NH_3 CO_2
+ NH, etc may be just the thing
possibly the reason why the green
works without graf when soaked
33% host 48 hours is that it

Nov 29 1904

Softens + makes better Contrast + possibly this reason why Cash Ultip made Exposure expensive ~~Bells~~ = try different Washes -

Possibly Reg q. 22 w 70 mesh + Eosin 30, 62 always with this mesh. put in Cup + pressed well on drying look big. then restitch (?) Channels —

Cut

Make groups Reg to 62 run with Iron no Hg in it.
Make vari on plunder with groups.

Reg up another test Rosin + put on another group

Looking together try weak
$NiCl_2$ $NiSO_4$ - $Ni(NO_3)$ Ni acetate
dry ether KOH, warm also cold
then dry 225 — also solution
of NH_4 NH_4Cl - CO_2 Salts, [illegible]
Defarmments Ni does therein —

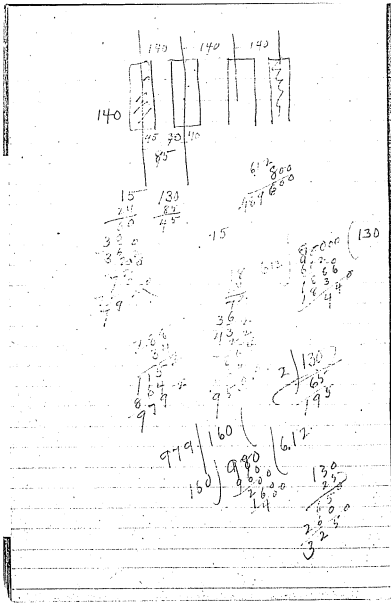
Ent

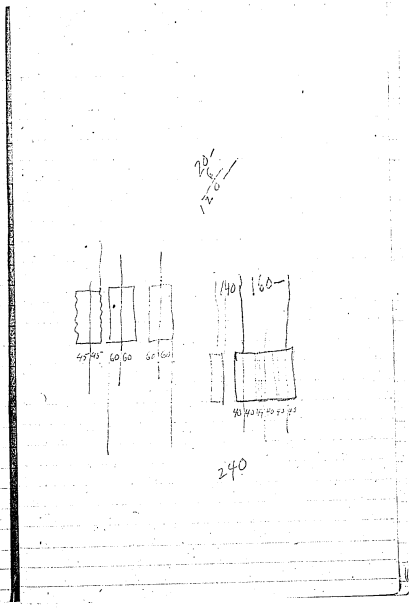
3.45 170

288
570
1440
1440

345 / 174
1350

17.5
35
35
35
35




240

2 100

3

60

70
3
210

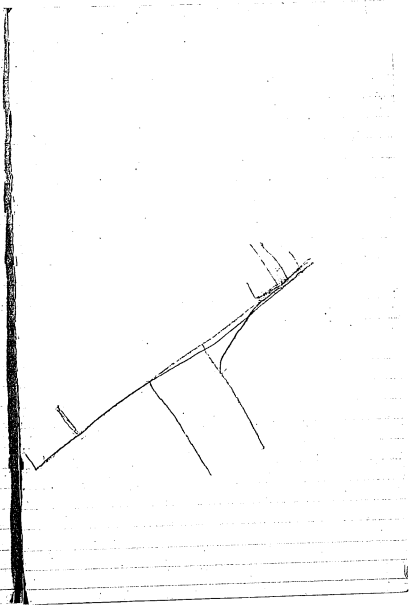
2.8
16
168
28
448

470

85 3.2
26
77

210
24
840
420
5040
480
960
504

1 1/4 lb

32 | 85 | 2.65
64
210
192
160
160

2.65
230
500
500
480
20
20